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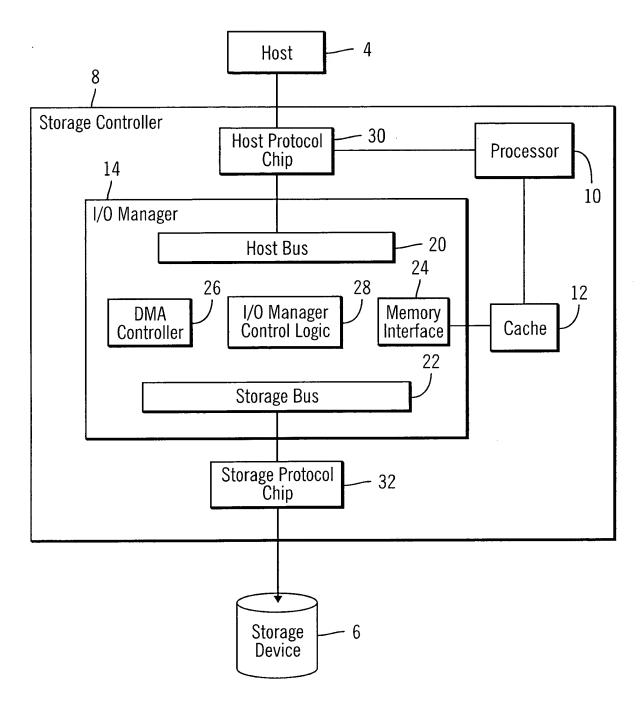


FIG. 1



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50

Hardware Control Block	
Byte	Field
<u>0-5</u> 0 - 1 2 - 5	<u>Target PA</u> Disk ID LBA
6-7	Reserved for processor.
8-23	Reserved for I/O Manager.
<u>24-25</u> Bits 0 - 9	<u>Controls</u> Reserved
Bit 10	Recalculate LRC after Target PA is added and add LRC.
Bit 11	Add target PA; use the target PA. The LBA is used for the first transferred sector. Increment the LBA for subsequent transferred sector.
Bit 12	Check LRC.
Bit 13	Check PA. Use the source PA. LBA must match first transferred sector. Increment the LBA for subsequent transferred sector.
Bits 14 - 15	Address Conversion: 00 - 512 cache to 512 host. 01 - 512 host to 520 cache. 10 - 520 cache to 512 disk. 11 - 520 cache/disk.
26-31 26-27 28-31	<u>Source PA</u> Disk ID LBA











	60
ADDRESS	FORMAT
Bit Offset	Field Description
63	Reserved
62	Hardware Control Block enabled (0 - do not use HCB; 1 - use HCB index).
61-64	Hardware Control Block Index.
43-33	Reserved
32-0	Memory Address

FIG. 3

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METHOD, SYSTEM, AND DATA STRUCTURES FOR USING METADATA IN UPDATING DATA IN A STORAGE DEVICE D. A. Burton, et. al. 09/630,228 - 100 The processor receives host write request to write n sectors to sectors in the storage device. Allocate a cache page to store requested - 102 sectors in cache. Cache page references logical disk including requested sectors. Allocate space in cache for 104 hardware control block. Set the add LRC (bit 10) and 106 add PA (bit 11) indicators. Set target PA (bytes 0-5) 108 to first sector to update. Set bits 14 and 15 to 01 --110 512 host to 520 cache.

Send DMA address and write request, including transfer length and source PA of where to start write, to host protocol chip, to transfer data from host to cache.

FIG. 4

Create a DMA memory address with: HCB enabled of 1; set address allocated for HCB in

cache; set address of page allocated for sector in cache.

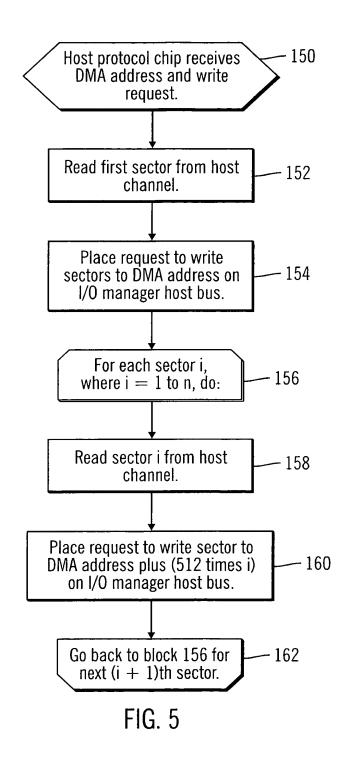
112

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METHOD, SYSTEM, AND DATA STRUCTURES FOR USING METADATA IN UPDATING DATA IN A STORAGE DEVICE D. A. Burton, et. al. 09/630,228





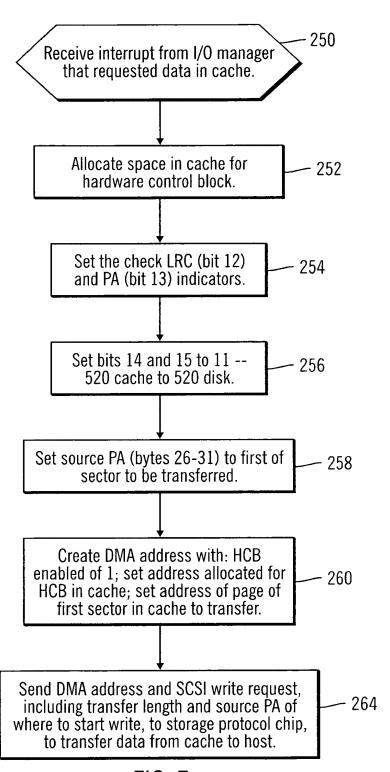


FIG. 7

METHOD, SYSTEM, AND DATA STRUCTURES FOR USING METADATA IN UPDATING DATA IN A STORAGE DEVICE D. A. Burton, et al. 09/630,228





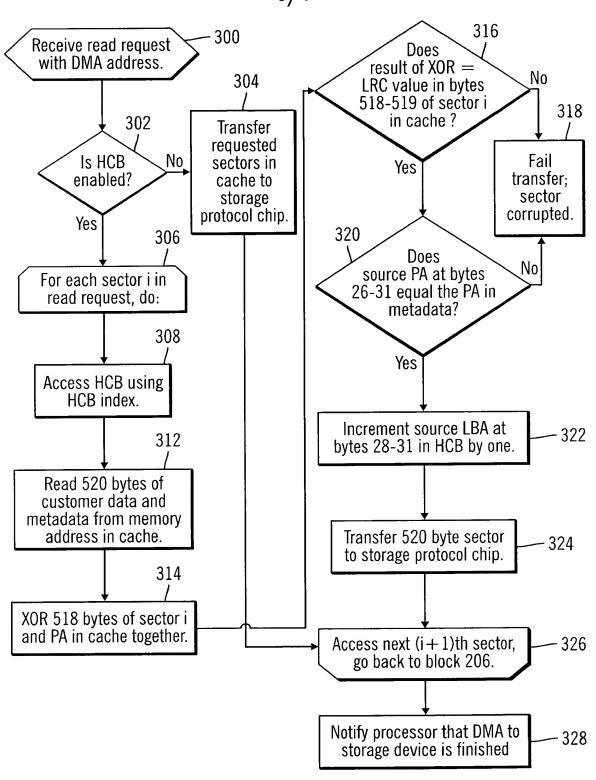


FIG. 8

364

366

368

for sector i.

Add control block for sector i to hash table and LRU list in

volatile part of cache.

Go back to block 352 for next

(i + 1)th sector on page.

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FIG. 9